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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/695,499	10/23/2000	Joshua Coates	SCAL.P0001	1575

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EXAMINER
HWANG, JOON H

ART UNIT	PAPER NUMBER
2162	

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

＋/／

	Application No.	Applicant(s)
	09/695,499	COATES ET AL.
Office Action Summary	Examiner	Art Unit	
	Joon H. Hwang	2162	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 December 2004*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *41-59* is/are pending in the application.

     4a) Of the above claim(s) *1-40* is/are ~~withdrawn from consideration.~~ Canceled

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *41-59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
   application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
     Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   The applicants canceled claims 1-40 and added new claims 41-59 in the

amendment received on 12/13/04.

The pending claims are 41-59.

Response to Arguments

2.   Applicant's arguments with respect to claims 41-59 have been considered but are

moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 41-44 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Popelka et al. (U.S. Patent No. 6,081,883) in view of Bergsten (U.S. Patent No.

6,360,306), and further in view of Wilson (U.S. Patent No. 6,718,347).

With respect to claim 41, Popelka teaches a plurality of storage centers each

having a local file system, each of the storage centers to store a plurality of files in the

local file system (i.e., a plurality of storage processors and the storages for storing files

for file systems, fig. 1, lines 35-58 in col. 5, line 62 in col. 11 thru line 17 in col. 12, lines

60-67 in col. 15, and lines 1-13 in col. 16). Popelka teaches a virtual file system to store

file system information for the local file systems (i.e., a file processor, presenting a

system image to an application or client, lines 31-39 in col. 3 and lines 25-31 in col. 8),

the virtual file system to indicate to the client a storage resource locator including a file

identifier to uniquely identify the file stored at the storage center, the client to access the

storage center via the virtual file system to manage the plurality of files via the virtual file

system with the storage resource locator (i.e., file names and file operations, such as

writing and reading, wherein a file name in file operations teaches a unique file

identifier, furthermore, in a typical file system, metadata about files, such as file names

and file locations, are shown to the user for allowing the user to perform file operations

to specific files, lines 35-45 in col. 5 and line 62 in col. 11 thru line 17 in col. 12).

Popelka does not explicitly disclose the storage centers located in geographically

disparate locations and coupled to each other. However, Bergsten teaches the storage

centers (i.e., a plurality of mass storage device (MSD)) that may be located in

geographically disparate locations from each other and coupled to each other in a

distributed storage system (lines 7-25 in col. 4, lines 25-40 in col. 1, and fig. 1) in order

to prevent data loss due to natural disaster. Therefore, based on Popelka in view of

Bergsten, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to utilize the teaching of Bergsten to the system of Popelka for

locating storage centers in geographically disparate locations in order to prevent data

loss of storage centers due to natural disaster. Popelka and Bergsten do not explicitly

disclose a wide area, public access network. However, Wilson teaches coupling a

storage center (i.e., storage system, item 118 in fig. 12) to another and a client through

a wide area, public access network (i.e., Internet network cloud 1206 in fig. 12, line 35 in

col. 28 thru line 7 in col. 29) in order to allow a storage center to have easy access to

the Internet. Wilson further teaches a public access network address for a storage

center and the client to access the storage center over the public access network (lines

35-56 in col. 28, lines 18-26 in col. 1, lines 44-67 in col. 7, lines 20-33 in col. 19).

Therefore, based on Popelka in view of Bergsten, and further in view of Wilson, it would

have been obvious to one having ordinary skill in the art at the time the invention was

made to utilize a public access network of Wilson to the system of Popelka in order to

allow a storage center to have easy access to the Internet.

With respect to claim 42, Popelka teaches a storage port at the client to access

the virtual file system and the storage centers (i.e., a network processor, fig. 1, lines 55-

65 in col. 2, lines 59-67 in col. 5, and lines 1-4 in col. 6).

With respect to claim 43, Popelka teaches an additional storage port at the client

to access the virtual file system and the storage centers, the client to dynamically

failover from the storage port to the additional storage port in the event of a failure of the

storage port (i.e, additional network processor for backup, fig. 1). Bergsten also

teaches utilizing multiple copies of system elements, such as MSD and storage

controllers in the event of a failover condition (line 15 in col. 3 thru line 36 in col. 4).

With respect to claim 44, Popelka teaches a plurality of distributed object storage

managers (i.e., a plurality of storage processors) to receive requests to access the

storage center and a storage cluster of intelligent storage nodes (i.e., storages) to store

the files of the network storage system and service access requests from the distributed

object storage managers (fig. 1, lines 35-58 in col. 5, line 62 in col. 11 thru line 17 in col. 12, lines 60-67 in col. 15, and lines 1-13 in col. 16).

With respect to claim 46, Popelka discloses a storage processor (the distributed object storage managers) comprising a cache for write (fig. 1). Popelka discloses a read cache in another processor (network processor, fig. 1). Thus, the read cache could be utilized additionally in the storage processor for storing files stored in storages.

5.   Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Popelka et al. (U.S. Patent No. 6,081,883) in view of Bergsten (U.S. Patent No. 6,360,306) and Wilson (U.S. Patent No. 6,718,347), and further in view of Gall et al. (U.S. Patent No. 6,356,929).

With respect to claim 45, Popelka, Bergsten, and Wilson disclose the claimed subject matter as discussed above. Popelka further teaches combined file storage processors (FSPs) combining the functions of the file processor and the storage processor, wherein the file processor contains metadata cache for file information (lines 25-32 in col. 11, fig. 1, and fig. 6). Popelka, Bergsten, and Wilson do not explicitly disclose a multicast protocol. However, Gall discloses a multicast protocol for distributing data (abstract, fig. 4, lines 66-67 in col. 5, and lines 1-11 in col. 6) in order to share data between computer systems or processors. Therefore, based on Popelka in view of Bergsten and Wilson, and further in view of Gall, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a

multicast protocol of Gall to the system of Popelka in order to distribute or share data

among processors for data consistency.

6.   Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Popelka

et al. (U.S. Patent No. 6,081,883) in view of Bergsten (U.S. Patent No. 6,360,306) and

Wilson (U.S. Patent No. 6,718,347), and further in view of Tzelnic et al. (U.S. Patent No.

5,948,062).

With respect to claim 47, Popelka, Bergsten, and Wilson disclose the claimed

subject matter as discussed above. Popelka further teaches LRU maintenance for a

cache teaching caching data for files in high demand (lines 14-16 in col. 12). Popelka,

Bergsten, and Wilson do not explicitly disclose a load balancing. However, Tzelnic

discloses balancing loads among data movers (processors, lines 4-14 and 62-67 in col.

10 and lines 1-5 in col. 11) for parallel processing. Therefore, based on Popelka in view

of Bergsten and Wilson, and further in view of Tzelnic, it would have been obvious to

one having ordinary skill in the art at the time the invention was made to utilize a load

balancing of Tzelnic to the system of Popelka in order to balance loads among

processors (DOSMs) for parallel processing.

7.   Claims 48-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Popelka et al. (U.S. Patent No. 6,081,883) in view of Bergsten (U.S. Patent No.

6,360,306) and Wilson (U.S. Patent No. 6,718,347), and further in view of Balabine et

al. (U.S. Patent No. 5,937,406).

With respect to claims 48-51, Popelka teaches a plurality of storage centers, the

storage centers having local file system management (i.e., a plurality of storage

processors and the storages for storing files for file systems, fig. 1, lines 35-58 in col. 5,

line 62 in col. 11 thru line 17 in col. 12, lines 60-67 in col. 15, and lines 1-13 in col. 16).

Popelka teaches a virtual file system (i.e., a file processor, presenting a system image

to an application or client) an aggregation of the local file system managements of the

storage centers (lines 31-39 in col. 3 and lines 25-31 in col. 8). Popelka teaches a

storage port (i.e., a network processor) to a client machine to interconnect the virtual file

system client to the storage centers (abstract, fig. 1, lines 42-54 in col. 2, and lines 46-

58 in col. 4), the client machine having a local file system management, the storage port

to translate a file request on the client machine from a format according to the local file

system of the client machine to a file request format according to the virtual file system,

including the storage port to generate a file identifier (i.e., file name), the storage port to

further transmit the translated file request to the storage center and remotely access the

identified file from the storage center (lines 55-67 in col. 2, lines 1-7 in col. 3, lines 59-67

in col. 5, lines 1-4 in col. 6, lines 60-67 in col. 15, and lines 1-13 in col. 16). Popelka

does not explicitly disclose the storage centers located in geographically disparate

locations and coupled to each other. However, Bergsten teaches the storage centers

(i.e., a plurality of mass storage device (MSD)) that may be located in geographically

disparate locations from each other and coupled to each other in a distributed storage

system (lines 7-25 in col. 4, lines 25-40 in col. 1, and fig. 1) in order to prevent data loss

due to natural disaster. Therefore, based on Popelka in view of Bergsten, it would have

been obvious to one having ordinary skill in the art at the time the invention was made

to utilize the teaching of Bergsten to the system of Popelka for locating storage centers

in geographically disparate locations in order to prevent data loss of storage centers

due to natural disaster. Popelka and Bergsten do not explicitly disclose a wide area,

public access network. However, Wilson teaches coupling a storage center (i.e.,

storage system, item 118 in fig. 12) to another and a client through a wide area, public

access network (i.e., Internet network cloud 1206 in fig. 12, line 35 in col. 28 thru line 7

in col. 29) in order to allow a storage center to have easy access to the Internet. Wilson

further teaches a public access network address for a storage center and the client to

access the storage center over the public access network (lines 35-56 in col. 28, lines

18-26 in col. 1, lines 44-67 in col. 7, lines 20-33 in col. 19). Wilson also teaches a web

browser for file operations and the Hypertext Transport Protocol (HTTP) for the Internet

(lines 44-67 in col. 7). Therefore, based on Popelka in view of Bergsten, and further in

view of Wilson, it would have been obvious to one having ordinary skill in the art at the

time the invention was made to utilize a public access network of Wilson to the system

of Popelka in order to allow a storage center to have easy access to the Internet.

Popelka, Bergsten, and Wilson do not explicitly disclose mounting the storage port (i.e.,

the network processor) at a client computer. However, Balabine discloses a network

database mounted as a storage device at a client computer (fig. 3, fig. 5, lines 33-46 in

col. 5, and lines 5-65 in col. 6) in order to assist a client explores the network database.

Therefore, based on Popelka in view of Bergsten and Willson, and further in view of

Balabine, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to utilize mounting a network storage as a local storage device

at a client computer of Balabine to the system of Popelka in order to assist the client

accessing the network storage virtually.

8.   Claims 52-56 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Popelka et al. (U.S. Patent No. 6,081,883) in view of Wilson (U.S. Patent No.

6,718,347), and further in view of Balabine et al. (U.S. Patent No. 5,937,406).

        With respect to claims 52-55, Popelka teaches receiving a file request for a file

according to a format of a local file system (abstract, fig. 1, lines 42-54 in col. 2, and

lines 46-58 in col. 4). Popelka teaches translating the file request to a format of a virtual

file system (i.e., a file processor, presenting a system image to an application or client),

including generating a file identifier (i.e., a file name), transmitting the translated file

request to the storage center (i.e., storage processors and storages), and accessing the

file at the storage center (lines 42-67 in col. 2, lines 1-7 and lines 31-39 in col. 3, lines

46-58 in col. 4, lines 59-67 in col. 5, lines 1-4 in col. 6, lines 25-31 in col. 8, lines 60-67

in col. 15, and lines 1-13 in col. 16). Popelka does not explicitly disclose a wide area,

public access network. However, Wilson teaches coupling a storage center (i.e.,

storage system, item 118 in fig. 12) to another and a client through a wide area, public

access network (i.e., Internet network cloud 1206 in fig. 12, line 35 in col. 28 thru line 7

in col. 29) in order to allow a storage center to have easy access to the Internet. Wilson

further teaches a public access network address for a storage center and the client to

access the storage center over the public access network (lines 35-56 in col. 28, lines

18-26 in col. 1, lines 44-67 in col. 7, lines 20-33 in col. 19). Wilson also teaches a web

browser for file operations and the Hypertext Transport Protocol (HTTP) for the Internet

(lines 44-67 in col. 7). Therefore, based on Popelka in view of Wilson, it would have

been obvious to one having ordinary skill in the art at the time the invention was made

to utilize a public access network of Wilson to the system of Popelka in order to allow a

storage center to have easy access to the Internet. Popelka and Wilson do not explicitly

disclose determining that the file is stored remotely from the local file system at a

geographically remote storage center. However, Balabine discloses a geographically

remote network database mounted as a storage device at a client computer (fig. 3, fig.

5, lines 33-46 in col. 5, and lines 5-65 in col. 6) in order to assist a client explores the

network database. A file operation request to this mounted network database is

determined that a requested file is at a geographically remote location. Therefore,

based on Popelka in view of Willson, and further in view of Balabine, it would have been

obvious to one having ordinary skill in the art at the time the invention was made to

utilize mounting a network storage as a local storage device at a client computer of

Balabine to the system of Popelka in order to assist the client accessing the network

storage virtually.

With respect to claim 56, Popelka teaches selecting one of a plurality of

distributed object storage managers (i.e., a plurality of storage processors) to service a

request to access the storage center and accessing the file on an intelligent storage

nodes (i.e., storages) of the selected distributed object storage manager (fig. 1, lines 35-

58 in col. 5, line 62 in col. 11 thru line 17 in col. 12, lines 60-67 in col. 15, and lines 1-13

in col. 16).

With respect to claim 58, Popelka discloses a storage processor (the distributed

object storage managers) comprising a cache for write (fig. 1). Popelka discloses a

read cache in another processor (network processor, fig. 1). Thus, the read cache

could be utilized additionally in the storage processor for storing files stored in storages.

9.   Claim 57 is rejected under 35 U.S.C. 103(a) as being unpatentable over Popelka

et al. (U.S. Patent No. 6,081,883) in view of Wilson (U.S. Patent No. 6,718,347) and

Balabine et al. (U.S. Patent No. 5,937,406), and further in view of Gall et al. (U.S.

Patent No. 6,356,929).

With respect to claim 57, Popelka, Wilson, and Balabine disclose the claimed

subject matter as discussed above. Popelka further teaches combined file storage

processors (FSPs) combining the functions of the file processor and the storage

processor, wherein the file processor contains metadata cache for file information (lines

25-32 in col. 11, fig. 1, and fig. 6). Popelka, Wilson, and Balabine do not explicitly

disclose a multicast protocol. However, Gall discloses a multicast protocol for

distributing data (abstract, fig. 4, lines 66-67 in col. 5, and lines 1-11 in col. 6) in order to

share data between computer systems or processors. Therefore, based on Popelka in

view of Wilson and Balabine, and further in view of Gall, it would have been obvious to

one having ordinary skill in the art at the time the invention was made to utilize a

multicast protocol of Gall to the system of Popelka in order to distribute or share data

among processors for data consistency.

10.   Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Popelka

et al. (U.S. Patent No. 6,081,883) in view of Wilson (U.S. Patent No. 6,718,347) and

Balabine et al. (U.S. Patent No. 5,937,406), and further in view of Tzelnic et al. (U.S.

Patent No. 5,948,062).

        With respect to claim 59, Popelka, Wilson, and Balabine disclose the claimed

subject matter as discussed above. Popelka further teaches LRU maintenance for a

cache teaching caching data for files in high demand (lines 14-16 in col. 12). Popelka,

Wilson, and Balabine do not explicitly disclose a load balancing. However, Tzelnic

discloses balancing loads among data movers (processors, lines 4-14 and 62-67 in col.

10 and lines 1-5 in col. 11) for parallel processing. Therefore, based on Popelka in view

of Wilson and Balabine, and further in view of Tzelnic, it would have been obvious to

one having ordinary skill in the art at the time the invention was made to utilize a load

balancing of Tzelnic to the system of Popelka in order to balance loads among

processors (DOSMs) for parallel processing.

Conclusion

11.   Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.
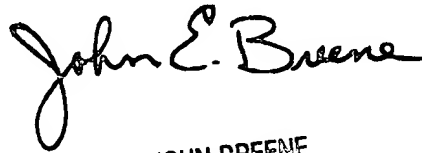
12.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Joon H. Hwang whose telephone number is 571-272-

4036. The examiner can normally be reached on 9:30-6:00(M~F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, JOHN E BREENE can be reached on 571-272-4107. The fax phone

number for the organization where this application or proceeding is assigned is 703-

872-9306.

Information regarding the status of an application may be obtained from the

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Business Center (EBC) at 866-217-9197 (toll-free).

Joon Hwang
Patent Examiner
Technology Center 2100

3/19/05